

ABSTRACT

Received signal characteristics of multiple concurrently received channels are determined using an analytical approach for computation in lieu of the measurement based approach of the prior art. A receiving wireless transmit receive unit (WTRU) and method are provided for processing concurrent communication signals from a plurality of transmitting WTRUs that concurrently transmit successive data blocks in a plurality of K forward channels. The receiving WTRU preferably has a receiver configured to receive successive data blocks of K concurrent transmissions transmitted from the transmitting WTRUs on the respective K forward channels. A processor is configured to compute individual channel characteristics for each forward channel k based on the characteristics of data signals received on all K forward channel. The processor is preferably configured to successively compute instantaneous Signal to Interference Ratio values for each forward channel j ($iSIR_j$), for integers $j = 1$ to K , based on a cross correlation matrix of channel response characteristics of K concurrently received data blocks and to selectively compute an average value that is used for the computing the individual channel characteristics for the forward channel k . The individual channel characteristics are advantageously used for power control or for the processing of the data blocks received on the respective forward channels.